CLAIMS

What is claimed is:

1. A reaction mixture for primer-based amplification of a target nucleic acid sequence, the reaction mixture comprising each conventional nucleotide dATP, dCTP, dGTP, and dTTP in combination with dUTP as a replacement for a portion of the dTTP; wherein the inclusion of dUTP reduces the formation of primer aggregates during the amplification reaction in comparison with an amplification reaction employing only conventional nucleotides.

2. The reaction mixture according to Claim 1, wherein the dUTP replaces from about 1 to about 75% of the dTTP in said reaction mixture.

3. The reaction mixture according to Claim 1, wherein the dUTP replaces from about 10 to about 50% of the dTTP in said reaction mixture.

4. The reaction mixture according to Claim 1, further comprising at least one additional unconventional nucleotide, wherein the combined concentration said dUTP and said at least one unconventional nucleotide does not exceed 75% of any one conventional nucleotide in said reaction mixture.

5. The reaction mixture according to Claim 1, wherein each member of the primer pair has at least one or more uracil bases incorporated therein.

6. The reaction mixture according to Claim 5, wherein each member of the primer pair has all of its thymidine bases replaced with uracil bases.

7. The reaction mixture according to Claim 1, wherein the dUTP does not exceed a final amplification reaction concentration of about 300 μM.

8. The reaction mixture according to Claim 1, wherein the dUTP does not exceed a final amplification reaction concentration of about 100 μM.

9. The reaction mixture according to Claim 1, further comprising at least one polymerase enzyme.

10. The reaction mixture according to Claim 1, further comprising a buffer system.

11. A method for reducing primer aggregation during amplification of a target nucleic acid, the method comprising: combining a target nucleic acid with a reaction mixture according to any one of Claim 1 to 10; and amplifying the target nucleic acid such that the level of primer aggregate formed during the amplification reaction is reduced as compared to amplifying the target nucleic acid using a dNTP mix having only conventional nucleotides.

12. A method for amplifying a target nucleic acid sequence, the method comprising: combining a sample with a reaction mixture according to any one of Claim 1 to 10; and amplifying the target nucleic acid such that the level of primer aggregate formed during the amplification reaction is reduced as compared to amplifying the target nucleic acid using a dNTP mix having only conventional nucleotides, wherein said method lacks an enzyme degradation step employing UNG.

13. The method according to Claim 11 or 12, wherein the reaction mixture further comprises sorbitol or mannitol.

14. The method according to Claim 13, wherein the target nucleic acid has secondary structure.

15. A composition for limiting primer aggregate formation during a nucleic acid amplification reaction of a target nucleic acid, the composition comprising:

an appropriate primer pair for the target nucleic acid to be amplified, each member of the primer pair having one or more uracil bases incorporated therein; and

an amplification reaction mixture comprising from 100 to 400 μM of the conventional nucleotides dATP, dCTP, dGTP and dTTP in a dNTP mix;

wherein the amplification of a nucleic acid using a uracil containing primer results in a reduction in the level of primer-aggregates formed during the amplification reaction, as compared to an amplification reaction that utilizes an identical primer pair where each primer has only standard base nucleotides.

16. The composition of claim 15 wherein each primer exhibits only uracil bases in replacement of thymidine bases.

17. The composition of claim 15 wherein the dNTP mix comprises four conventional nucleotides and dUTP.

18. The composition of claim 17 wherein the dUTP replaces between about 10% and 50% of the dTTP in the dNTP mix.